

ADAPTABLE DISTILLATION COLUMN

Description

Background of the Invention

Field of the Invention

5 The present invention relates to distillation and in particular to a
distillation column design for increasing versatility and improving purity of
distillate over other distillation column designs for use in small scale distilling.
Small scale distilling is considered to be distillation volumes of no more than 100
gallons.

Description of the Prior Art

10 Distillation is an art enjoyed by many individuals and small scale
commercial distilleries with a satisfying product to enjoy at the end of the process.
There can be creativity in producing a variety of products such as essential oils,
15 distilled vinegars, and alcohol.

 Standard distillation columns are designed for a single method of use,
limiting the users ability to distill varying products or by a variety of methods to
produce the specific desired results.

20 Standard reflux distillation columns utilize a method of cooling that does
not maximize the ability and efficiency of the distillation column, which results in
decreased purity of the resulting distillate.

Summary of the Invention

An object of the present invention is to provide an improved cooling design to the small scale reflux distillation column which will produce a distillate of increased purity.

5 Another object of the present invention is to increase the versatility of the small scale distillation column by creating a method for the distiller to adapt the column to their specific individual distillation requirements on an individual distillation process basis.

10 In brief an adaptable distillation column and method comprises adding a base product to a boiling vessel and attaching a distillation column to the boiling vessel by a method where a seal is created between the boiling vessel and the distillation column. Heat is added to the boiling vessel sufficient to cause the product inside of the boiling vessel to boil. The vapor created by boiling the base product rises into the adaptable distillation column where it may or may not be
15 condensed and vaporized repeatedly depending on the distillation method chosen, prior to exiting the distillation column. Vapor exiting the adaptable distillation column is condensed to liquid form and subsequently collected by the distiller.

20 The present invention has a primary advantage in that it produces reflux nearer the top of the distillation column when used in the associated mode when compared to other distillation columns.

Another advantage of the present invention is that the adaptable distillation column may be used for a larger range of distillation methods than other small scale distillation columns.

A related advantage of the present invention is that distillate produced when the adaptable distillation column is used in reflux distillation mode will be of increased purity.

Another related advantage of the present invention is that the distillate produced when the adaptable distillation column is used in traditional distillation mode will be of increased bouquet and flavor.

Best Mode for Carrying Out the Invention

An adaptable distillation column comprises tubing made of metal or plastic of at least 1.5 inches in diameter and at least 8 inches in length to which a hole is drilled near one end of the tubing and a length of smaller diameter tubing leading to a method of condensing the vapor is attached and sealed. One or more lengths of tubing smaller in diameter than the larger diameter tubing and sufficient in length to protrude at least 0.15 inches on both sides of the larger diameter tubing are placed directly through the larger diameter tubing through holes drilled on opposing sides of the tubing. The connections between the larger diameter tubing and smaller diameter tubing are sealed to avoid any vapor escaping during use in distillation. A connector is attached and sealed to the opposite end of the larger diameter tubing of a type that will allow the adaptable distillation column to be temporarily connected to a boiling vessel by a sealed connection. One or more

lengths of larger diameter tubing with an identical style of connector to that on the adaptable distillation column attached and sealed to one end of the tubing, while a connector identical to that on the boiling vessel is attached and sealed to the opposite end of the tubing may be used to create an adaptable distillation column.

5 One or more pieces of the larger diameter tubing may have a screen put in place on the bottom side of the tubing to hold in a material that may be placed into the tubing while allowing vapor to rise through the tubing.

An adaptable distillation column comprises:

A length of tubing with an attached method of condensing vapor, plus one
10 or more lengths of smaller diameter tubing placed directly through the larger diameter column known as cooling tubes. The smaller diameter tubing can be used to carry water or another liquid through the larger diameter column for the purpose of cooling vapor that is rising through the larger diameter column. A connector sufficient to attach and seal the tubing to a boiling vessel

15 One or more lengths of larger diameter tubing with connectors sufficient to attach to both a boiling vessel and the adaptable distillation column may be used for the purpose in increasing the total length of the adaptable distillation column.

It is understood that the preceding description is given merely by way of illustration and not in limitation of the invention and that various modifications
20 may be made thereto without departing from the spirit of the invention as claimed.